

REMARKS

At the time the current Official Action was mailed, the Examiner rejected claims 1 and 3/1 and objected to claims 2 and 3/2 for relying on a rejected parent claim. Applicant thanks the Examiner for indicating that claims 2 and 3/2 would be allowable if rewritten in independent form and for extending Applicant the courtesy of a telephonic interview.

Interview Summary

On August 22, 2006, an Examiner interview was held via teleconference with the following parties: Examiner Yogesh Aggarwal, Examiner Vivsh Srivasdava, Applicant Philip Atkin, foreign associate Ben Swabe, attorney Michael Fletcher, and attorney Josh Tucker. The Morrison reference (U.S. Patent No. 5,828,793) and the Mann reference (U.S. Patent No. 5,033,096) were discussed with regard to claim 1. Specifically, the Examiners recognized that the Mann reference does not provide for obtaining a substantially linear representation of the brightness of an image and that the Morrison reference was not directed to the manipulation of multiple image samples. However, although claim 1 inherently is directed to the manipulation of multiple image samples, the Examiners suggested that Applicant amend claim 1 to clarify that the term “n samples” explicitly refers to two or more image samples.

As indicated by the preceding listing of the claims, Applicant has amended claim 1 by this Response. Applicant stresses that this amendment merely clarifies claim 1 and does not change its original inherent scope. By the present amendment, the language “n

is greater than or equal to 2” has been added to clarify that the term “n samples” refers to two or more samples. However, as indicated by the plural form of the term “n samples,” as well as the various summations, claim 1 referred to two or more samples prior to the presently discussed amendment. The amended language merely reiterates this feature of claim 1 to make it more explicit. Thus, the scope of claim 1 is not changed by this amendment.

Rejections under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1 and 3/1 under 35 U.S.C. § 103(a) as being unpatentable over the Mann reference in view of the Morrison reference. Specifically, the Examiner stated:

Mann discloses a method of creating an image with a still video camera (col. 11 lines 43-46, figure 8; element 202). Mann further teaches that the image is transferred to a computer to be stored on a main memory 210 represented as 212₁, 212₂, 213₃, etc. (col. 11 lines 46-54). Mann also teaches that the composite images formed from a series of input images wherein every pixel of the composite image is drawn from the corresponding pixel in each of the input source images according to a weighted average. The weighting is based on a certainty function associated with each source image pixel corresponding to an output pixel in the final composite image. The value of the relevant pixel parameter for a given final-image pixel (weighted average of n samples) is given by

$$\sum_n c_n P_n / \sum_n c_n$$

where c is the certainty function associated with the corresponding pixel of each source image n (col. 6 line 5 1 -col. 7 line 8). It is noted that P_n (pixel parameter) is dependent upon

exposure time, brightness or luminance and the gain of the system. Mann teaches that the resulting pixel image represented by the expression above is saved in a target buffer 250 whose contents are shown on screen display 234 (col. 12 lines 32-49). The features such as gamma correction (other image data) are also stored in the target image data (col. 13 lines 4-8).

Mann fails to teach explicitly obtaining a substantially linear representation of the image. However Morrison et al. teach a method of summing the amount of light (brightness levels) of all the rows of pixels in order to generate a linear array of summation values in which the summation values are allocated to positions of the sensor values in the CCD array (col. 7 line 57 - col. 8 line 18, figure 5) in order to cancel the totally random noise errors in the signals from each element of the CCD by summing them so that the localized abnormalities do not have substantial effect on the value.

Therefore taking the combined teachings of Mann and Morrison, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have obtained a substantially linear representation of the image by summing them in order to cancel the totally random noise errors in the signals from each element of the CCD by summing them so that the localized abnormalities do not have substantial effect on the value as taught in Morrison (col. 3 lines 10- 15).

Final Office Action, pages 4 and 5.

Applicant respectfully traverses this rejection. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact

that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

Features Missing from the Cited References

Independent claim 1 recites, *inter alia*:

... calculating an estimate of the true image intensity (i_{xy}) as a weighted average of n samples of the apparent image intensity ($v_{n,xy}$) as

$$\hat{i}_{xy} = \frac{\sum_n \left(w_{n,xy} \left(\frac{v_{n,xy} - C}{KT_n} \right) \right)}{\sum_n w_{n,xy}} = \frac{1}{K} \frac{\sum_n \left(w_{n,xy} \left(\frac{v_{n,xy} - C}{T_n} \right) \right)}{\sum_n w_{n,xy}}$$

where $v_{n,xy}$ is the apparent intensity measured, n is greater than or equal to 2, T_n is the exposure time, K is the gain of the system, C is an offset and $w_{n,xy}$ is a weighting factor which is defined to maximise the signal to noise ratio and discard insignificant, that is saturated or near zero, values signal to noise ratio and discard insignificant, that is saturated or near zero, values; ...

The present rejection is flawed for a number of reasons. For example, neither the Mann reference nor the Morrison reference, taken alone or in hypothetical

combination, teach or suggest the step of obtaining a substantially linear representation of the brightness of an image in the manner recited by in claim 1.

Indeed, Applicant agrees with the Examiner's statement that "Mann fails to teach explicitly obtaining a substantially linear representation of the image." Further, Applicant respectfully asserts that the Morrison reference also fails to disclose these features. As indicated by the equation above, claim 1 recites calculating a true image intensity (i_{xy}) for each pixel with "a weighted average of n samples of the apparent image intensity (v_{xy})" for each pixel, where "n is greater than or equal to 2."

(Emphasis added.) In sharp contrast, the Morrison reference teaches an edge detection technique that is performed on a *single* sample. See Morrison, col. 8, ll. 19-22. To detect an edge within a single image, the Morrison reference teaches "[s]umming all the horizontal rows" of pixels into a single column, or spatially linear array. See Morrison, col. 8, ll. 7-8 and 38-39. The spatially linear array is then analyzed using an edge detection algorithm. See Morrison, col. 8, ll. 19-37 and Fig. 5. In other words, the Morrison reference teaches adding pixels in a row, i.e., \sum_x or \sum_y , and not adding corresponding pixels from *multiple* image samples, or \sum_n , as recited by independent claim 1. Accordingly, the Mann reference and the Morrison reference, taken alone or in hypothetical combination, cannot render obvious claim 1 or the claims that depend therefrom. Indeed, the Examiners recognized this deficiency during the interview and agreed to withdraw the present rejection.

For these reasons among others, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. § 103 and allowance of all pending claims.

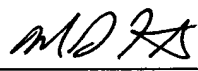
Conclusion

The Applicant respectfully submits that all pending claims are in condition for allowance. However, if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

In accordance with 37 C.F.R. § 1.136, Applicant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request thereof.

Respectfully submitted,

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